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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/720,295

11/24/2003

Sergio Martins Loureiro

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GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

EXAMINER

PARKER, FREDERICK JOHN

ART UNIT

PAPER NUMBER

1762

MAIL DATE

DELIVERY MODE

05/03/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/720,295	Applicant(s) LOUREIRO ET AL.	
	Examiner Frederick J. Parker	Art Unit 1762	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 3/8/07.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 47-62 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 47-62 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Specification

The amendments in response to the Objections to the Specification of the Previous Office Action are acknowledged and appreciated, and the Examiner withdraws the objections.

Claim Rejections - 35 USC § 102

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

1. Claims 47-60⁶² are rejected under 35 U.S.C. 102(e) as being anticipated by Chao et al US 2003/0152759 (EFD 1/29/02).

Chao teaches forming templated nanostructured materials comprising providing a mesoporous host material with uniform and ordered mesopores and subsequently incorporating charged particles (e.g. metal salts, oxo or other complexes, metal ligand hybrids, etc per claims 49,53) into the mesoporous material and treating the product, to cause, for example, crystallization, oxidation or precipitation [0029] per claim 49c, as to form metal oxides in nano scale particles, wires, or networks including mixed metal oxide nanostructures [0026-27]. Mesoporous hosts include silica, titania, etc in numerous forms [0020]. Particle precursors may be added as solutions [0025]. Oxidation of metal complexes using oxygen is cited [0027]. Particles are inherently less than 100 nm because the mesopores into which they are incorporated are 0.1-50 nm, and further examples show particles less than 100 nm. Particle materials are exemplified in

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[0024] and include Zr and Ti, which are group IVB metals, which when oxidized would become IVB metal oxides in a mesoporous ceramic matrix, e.g. silica, zirconia, etc..

The mesoporous host may be prepared by mixing functional groups comprising amines, alcohols, etc with attaching groups e.g. organic silanes which are treated by ageing, washing, and drying to form templated mesoporous hosts {0019-0022}. The Examples teach forming templated silica hosts, which as in Ex. 10 [0040] an iron solution is added, followed by heating in oxygen at 500 C for 6 hours, per claims 50-51.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claim 61 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chao in view of Pham US 6548440.

Chao is cited for the same reasons previously discussed, which are incorporated herein. Forming methods are not cited. However, Pham teaches an analogous method of forming templated mesoporous materials comprising metal oxide particles <100 nm, in which spray drying is taught on col. 11,44 to col. 12, 63 and elsewhere as a means to form the metal oxide templated silica meso-structure. Hence, it would have been obvious to one of ordinary skill in the art at the time the invention was made to carry out the method of Chao et al by utilizing spray drying as taught by the similar process of Pham because of the expectation of forming a metal oxide templated silica meso-structure.

Response to Arguments

Applicants repeatedly argue Chao et al does not anticipate the amended claim because the reference does not disclose a ceramic composite comprising nanoparticles of at least one group IVB metal oxide. The Examiner respectfully disagrees. [0024] teaches to use molecular materials or compounds including those containing Ti and Zr which are group IVB elements (see Applicants disclosure [0028] and attached exhibit #1). Further the reference teaches to OXIDIZE the materials to form nanoparticles or wires to form metal oxides [0025-27] in a mesoporous ceramic matrix, e.g. silica, zirconia, etc, the particles necessarily being less than 100 nm for reasons previously discussed. Thus Chao et al teaches each and every limitation of the cited claims as presented, and they are anticipated by the reference.

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Frederick J. Parker whose telephone number is 571/ 272-1426. The examiner can normally be reached on Mon-Thur. 6:15am -3:45pm, and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571/272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Frederick J. Parker
Primary Examiner
Art Unit 1762

fjp

[illegible]